

Available online on 15.07.2021 at <http://jddtonline.info>

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

Copyright © 2021 The Author(s): This is an open-access article distributed under the terms of the CC BY-NC 4.0 which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited



Open Access Full Text Article



Review Article

Unani Concept of Anaemia in Pregnancy (Hamla me Khoon ki Kami): An Overview

S.M. Arif Zaidi^{1*}, Khudeja Khatoon²

1. Professor, Department of Jarahiyat (Surgery), School of Unani Medical Education & Research, Jamia Hamdard, New Delhi, India

2. Associate Professor, Department of Ilmul Saidla, Hayat Unani Medical College & Research Center, Lucknow, India

Article Info:



Article History:

Received 08 May 2021
Review Completed 21 June 2021
Accepted 28 June 2021
Available online 15 July 2021

Cite this article as:

Zaidi SMA, Khatoon K, Unani Concept of Anaemia in Pregnancy (Hamla me Khoon ki Kami): An Overview, Journal of Drug Delivery and Therapeutics. 2021; 11(4):111-115

DOI: <http://dx.doi.org/10.22270/jddt.v11i4.4863>

*Address for Correspondence:

S. M. Arif Zaidi, Professor, Department of Jarahiyat (Surgery), School of Unani Medical Education & Research, Jamia Hamdard (Deemed to be University), New Delhi, India.

Abstract

Anaemia is a most common disorder of Indian women especially during the age of reproduction. Anaemia in pregnancy is a condition with effects that may deleterious to mothers and foetus. Indeed, it is a known risk factor for maternal and leads to foetal complications. However, women are much better aware now about their pregnancy related conditions than they were years ago. This is not just a feminist fad but common sense for the woman who knows what is likely to happen and will be better prepared for actions in pregnancy. The WHO considers iron deficiency to the largest International nutritional disorder. According to WHO anaemia in pregnancy is present when the concentration of haemoglobin in the peripheral blood is 11gms/100ml or less. As per American college of obstetrician and gynaecologist 60-100mgs of elemental iron per day prevents iron deficiency in a pregnant woman. In Unani system of medicine number of drugs and diets are available which have preventive and therapeutic role. Unani physicians paid special attention to child and mother care in general as well as in pregnancy. Natural medicines are economical, easily available and relatively free of side effects. So, the present topic highlights the use of Unani medicines providing iron supplements in the treatment of early and late pregnancy.

Keywords: Anaemia, Pregnancy, Foetal complications, Unani medicine

Introduction

Anaemia is a condition in which the number of red blood cells (and consequently their oxygen-carrying capacity) is insufficient to meet the body's physiologic needs.¹ WHO define nutritional anaemia as "a condition in which the haemoglobin content of the blood is lower than normal as a result of a deficiency of one or more essential nutrients, regardless of the cause of such deficiency". This is the most common type of anaemia worldwide and includes iron, folate and vitamin B-12 deficiencies. It can be caused by insufficient dietary intake of iron, chronic gastrointestinal bleeding, malabsorption conditions and infection.² Anaemia is a common problem in present scenario. Anaemia is defined as reduction in circulating haemoglobin mass below the critical levels. The normal haemoglobin is between 12-14 gms%. WHO has accepted up to 11 gms% in case of pregnancy.² However in India it is often accepted as 10 gms%. Hemoglobin level categorized into mild anemic (10.0-10.9 g/dL), moderate anemic (7 -9.9 g/dL) and severe anemic (<7.00 g/dL) according to WHO criteria.¹ Worldwide 4.5 billion people are affected by deficiencies of iron, vitamin A and iodine,³ with zinc of increasing concern. 4-5 Young children and pregnant women are most vulnerable to these deficiencies.⁶⁻⁸ Pregnancy induces physiological changes that often confuse the diagnosis of several haematological

disorders and the assessment of their treatment especially in the case of anaemia. About 40% of maternal deaths in third world countries are due to anaemia. There are various risk factors which are responsible for anaemia like unhygienic condition, low socio-economic status etc. Anaemia in pregnancy also increases maternal morbidity, foetal and neonatal mortality and morbidity significantly. Recent WHO analysis about maternal death causes shows that haemorrhage is the major contributor to maternal deaths in developing countries.⁹

Incidence of Anaemia

According to WHO the prevalence of anaemia in pregnancy in South East Asia is around 56%. In India it has been noted as high as 40-80%. It is also noted in everybody (13%), pregnant women (24%), Women (20%), children (43%).¹⁰

Degree of Anaemia

To ascertain the degree of anaemia one must look for Hb%, RBC count, PCV (Packed Cell Volume).¹¹

1. Mild degree Anaemia (8-10 gm%)
2. Moderate degree Anaemia (7-8 gm%)
3. Severe degree Anaemia (<7 gm%)

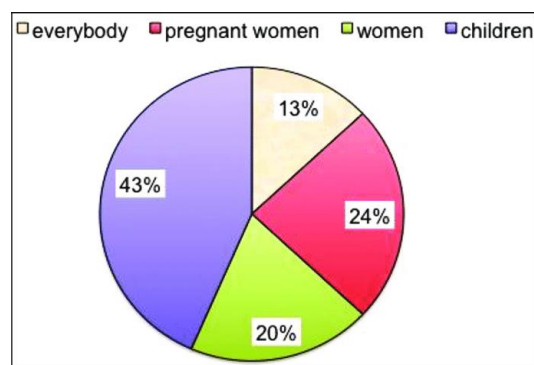


Figure 1: Percentage of anaemia in different group

Risk Factors

Factors which are responsible for anaemia in pregnancy:^{12,13}

1. Sociodemographic (like age, level of formal education, marital status, areas and cities of residence)
2. Obstetrical (like gravidity, parity, history of previous preterm, or Small-for-gestational-age deliveries, plurality of pregnancy multiple or singleton).
3. Behavioral (e.g smoking or tobacco usage, alcohol usage)
4. Medical conditions (diabetes, renal or cardio-respiratory diseases, chronic hypertension).

Causes of Anaemia

The commonest causes of anaemia in developing countries in pregnant women and preschool age children), are nutritional disorders and infections.¹⁴ Iron requirements dramatically increase in pregnancy to accommodate an expanding red cell volume, growing fetus, and placenta plus any anticipated or unanticipated blood loss at delivery, especially with caesarean delivery.¹⁵ Iron requirements are highest for pregnant women –1.9 mg/1,000 Kcal of dietary energy in the second trimester and 2.7 mg/1,000 Kcal in the third trimester. Vitamin B12 is necessary for the synthesis of RBCs and its deficiency has been associated with megaloblastic anemia. Folic acid is also essential for the formation and maturation of RBCs and is necessary for cell growth and repair.

Iron deficiency is a consequence of:

- Decreased iron intake
- Increased iron loss from the body
- Increased iron requirement

Helminths such as hookworm and flukes cause chronic blood loss and consequently iron loss from the body, resulting in the development of anaemia. Malaria, especially by the protozoa *Plasmodium falciparum* and *vivax*, causes anaemia by rupturing RBCs and suppressing production of RBCs. Certain chronic diseases, such as cancer, HIV/AIDS, rheumatoid arthritis, Crohn's disease and other chronic inflammatory diseases, can interfere with the production of RBCs, resulting in chronic anaemia. Kidney failure can also cause anaemia.¹⁴

The causes of anaemia are as follows:

I. Physiological :

During pregnancy the blood volume is increased by means of 50%. Plasma volume increases disproportionately compared with red cell mass, resulting in physiological decrease in haematocrit.

II. Acquired:

1. Nutritional :
 - A. Iron deficiency anaemia (60%): Iron-deficiency anaemia is one of the most significant factors in the high rate of maternal mortality, as women are at risk of death from haemorrhage. Anaemia in pregnant women in developing countries is generally presumed to be the result of iron deficiency.
 - B. Macrocytic anaemia (1%)
 - C. Dimorphic or protein deficiency anaemia (30%)
2. Haemolytic anaemia
3. Anaemia caused by acute blood loss
4. Megaloblastic anaemia
5. Aplastic or hypoplastic anaemia
6. Anaemia of inflammation or malignancy ^{12,13}

Symptoms of Anaemia

Clinical features of iron deficiency Anaemia depends more on the degree of anaemia. Symptoms of anaemia include lassitude, feeling of exhaustion, weakness, anorexia, indigestion, palpitation, swelling legs. Signs of anaemia include pallor, glossitis, Stomatitis, edema legs, soft systolic murmur in mitral area. Investigations are done to detect the degree of anaemia, the type of anaemia, the cause of anaemia.¹¹

The symptoms of anaemia are as follows:¹³

- 1) Fatigue
- 2) Dizziness
- 3) Headache
- 4) Lethargy
- 5) Excessive sweating
- 6) Indigestion
- 7) Sleep disturbances

Complications

Anaemic women are at greater risk of death during intra and postpartum period. Therefore children's mental and physical development is delayed or impaired by iron deficiency.¹⁶ Preterm birth is defined as a delivery prior to 37 completed weeks of gestation. Low birth weight is defined as a term baby born with weight less than 2500 gram or 2.5 kg. Iron and protein deficiency are one of the leading causes for pregnant mothers having low birth weight babies.¹⁷ Malaria in pregnancy increases the risk of maternal anaemia, stillbirth, spontaneous abortion, LBW and neonatal deaths.¹⁴

Consequences of Anaemia in pregnancy:^{13,16}

1. Poor weight gain during pregnancy
2. Preterm labour
3. Eclampsia
4. Placenta previa rupture
5. Accidental haemorrhage
6. Premature rupture of membranes

Research Studies

Research study done by Manisha et al showed women with severe anaemia were at a significantly higher risk of PPH, giving birth to low birthweight and small-for-gestational age babies, and having a baby who died in the perinatal period. Importantly, the risk of PPH increased 17-fold among women with moderate-severe anaemia who underwent induction of labour.¹⁸

Research study done by Gogoi M et al showed that increasing or decreasing level of haemoglobin has a positive impact on preterm delivery. It has been revealed that half of all perinatal deaths and one third of all infants deaths occur due to low birth weight. From this study it was found that women having both low and high level of haemoglobin concentration in blood have a higher risk of termination or abortion in her reproductive course.¹⁷

Limitations of Modern Medicines

There are serious adverse effects (SAEs), including anaphylaxis, infusion minor reactions occurs in parenteral iron therapy. These minor reactions are due to labile free iron and consist of pressure in the chest or back or facial flushing – symptoms not seen with severe hypersensitivity. Further, with use of antihistamines can cause somnolence, diaphoresis, tachycardia, and hypotension which may be attributed to the intravenous iron. Parenthetically, intramuscular iron should be avoided as it is painful, requires multiple injections, stains the buttock, and is associated with gluteal sarcoma. Oral iron exacerbates constipation which is common during pregnancy due to high progesterone levels which slow bowel transit, and the enlarging uterus pressing posteriorly on the rectum.^{19,20}

Unani Treatment

Line of treatment of anaemia:²¹

1. To remove the underline cause.
2. To remove the constipation.
3. To prevent the formation of fuzlat (faecal matter).
4. To remove the fuzlat (faecal matter) which are already present inside the body.
5. To improve the digestion & to give stomach tonic drugs.
6. Morning walk in fresh air.
7. To give easily digestible & nutritious diet.

Dietotherapy: Sources of Iron

- a) Amarnath (21.4mg)
- b) Bajra (8.8mg)
- c) Chana (8.9mg)
- d) Matar khushk (4.4mg)
- e) Karela (9.4mg)
- f) Gur (11.4mg)
- g) Gengelly seeds (10.8mg)
- h) Podina (15.6mg)
- i) Gosht (2.5mg)

Below are Few Single Unani Drugs Effective in Aneamia:

1) Anar (*Punica granatum*)



Figure 2: Flower of *Punica granatum*

- a) Belongs to the family Punaceae.
- b) The chemical constituents are ellagic acid, gallic acid, alkaloids, fluoride, calcium, magnesium, phosphate, vitamin C, iron, thiamine, riboflavin, niacin.
- c) The actions are heart tonic, liver tonic, diuretic, musakkin-e-safra wa dam.

2) Angoor (*Vitis vinifera*)



Figure 3: *Vitis vinifera*

- a) Belongs to the family Vitaceae.
- b) The chemical constituents are carbohydrates, sugar, dietary fibres, protein, fat, riboflavin, vitamin C, iron, calcium, sodium, phosphorous, magnesium, anthocyanins, phenolics, resveratrol.
- c) The actions are laxative, heart tonic, stomach tonic, diuretic, aphrodisiac, and appetizer.

3) Amla (*Emblica officinalis*)



Figure 4: *Vitis vinifera*

- a) Belongs to the family Euphorbeaceae.
- b) The chemical constituents are vitamin C, gallic acid, D-fructose, D-glucose, ellagic acid, calcium, copper, iron, β carotene, thiamine, sucrose, fat, protein, phyllemblic acid.
- c) The actions of the drug are brain tonic, liver tonic, stomach tonic, eye tonic, musakkin-e-safra wa dam, hair.

4) Zafran (*Crocus sativus*)



Figure 5: *Crocus sativus*

- a) Belongs to the family Iridaceae.
- b) Chemical constituents are volatile oil, crocein, crocetin, picrocrocein, glucosides, sugar, and protein.
- c) The actions of the drug are diuretic, heart tonic, stomach tonic, brain tonic, eye tonic, emenagogue.

5) Gajar (*Daucus carota*)



Figure 6: *Daucus carota*

- a) Belongs to the family Apeaceae.
- b) Chemical constituents are carotol, dausene, α -pinene, β -caryophyllene, flavanoids and glycosides such as apigenin-4-o- β -glucoside and apigenin-7-o- β galactopyranosyl β -D mannopyranoside, α carotene, β carotene.
- c) The actions are heart tonic, diuretic, anti-inflammatory, analgesic, emenagogue.^{22,23,24,25}

Unani Formulations

The formulations which are used in Unani system of medicine are given below:^{21,23}

- 1) Qurs kushta khabsulhadeed
- 2) Qurs kushta faulad
- 3) Sharbat-e-faulad
- 4) Sharbat-e-anarain
- 5) Majoon dabeedul ward
- 6) Jawarish Jaleenoos

Mamoolat-e-Matab

To give Kushta folad (3 branj) along with Jawarish Jaleenoos (7 masha), then give Sheera Badyan (7 masha), Sheera Kashneez khushk (5 mash) & Sheera Mawez munaqqa (9 dana) with Sharbate Anar (7 masha).²¹

Conclusion

Women are more liable to develop anaemia especially in pregnancy because they have higher requirement of iron and folate. Apart from the adverse effects on health of the mother during pregnancy anaemia greatly increases the risk of haemorrhage which occurs unexpectedly during pregnancy or labour. In Unani system of medicine anaemia is generally treated by giving dietary supplements. Herbs are the vital sources in treating various diseases especially the disorder related to that of iron. There are several compound formulations which are generally used to treat anaemia and showing very good results. Therefore in order to prevent

anaemia in pregnancy there should be regular antenatal checkups, early detection of anaemia to be ruled out, good nutrition and iron supplementation by providing iron rich herbs & Unani formulations throughout the pregnancy can help to achieve the goal of a healthy mother and healthy baby.

References

1. WHO, Micronutrients indicators haemoglobin concentrations for the diagnosis of anaemia and assessment of severity, vitamin and mineral nutrition information system, 2011.
2. World Health Organization. The prevalence of anaemia in women: A tabulation of available information, 1992. WHO, Geneva. Accessed January 15, 2008.
3. Underwood, B., Scientific research: Essential, but is it enough to combat world food insecurities. The Journal of Nutrition, 2003; 133(5):1434-1437. <https://doi.org/10.1093/jn/133.5.1434S>
4. Gibson, R. S., Zinc: The missing link in combating micronutrient malnutrition in developing countries. Proceedings of the Nutrition Society, 2006; 65(1):51-60. <https://doi.org/10.1079/PNS2005474>
5. Black, R., Allen, L., Bhutta, Z., Caugfield, L., de Onis, M., Ezzati, M., et al., Maternal and child under nutritional: Maternal and child under nutrition: Global and regional exposures and health consequences. Lancet, 2008; 371:243-260. [https://doi.org/10.1016/S0140-6736\(07\)61690-0](https://doi.org/10.1016/S0140-6736(07)61690-0)
6. Steyn, C. E., & Herselman, J. E., Trace elements in developing countries using South Africa as a case study. Communications in Soil Science and Plant Analysis, 2005; 36(1-3):155-168. <https://doi.org/10.1081/CSS-200043017>
7. Van den Broek, N., Anaemia and micronutrient deficiencies. British Medical Bulletin, 2003; 67:149-160. <https://doi.org/10.1093/bmb/ldg004>
8. Cakmak, I., Plant nutrition research: Priorities to meet human needs for food in sustainable ways. Plant and Soil, 2002; 247(1):3-24. <https://doi.org/10.1023/A:1021194511492>
9. World Health Organization. Assessing the iron status of populations. WHO2006; Geneva. Accessed January 15, 2008.
10. Bismark Dwumfour-Asare, Mavis A. Kwapong, Anaemia awareness, beliefs and practices among pregnant women: A baseline assessment at Brosankro community in Ghana, Journal of Natural Sciences Research, 2013; 3(15).
11. Chowdhury S, Rahman M, Moniruddin ABM, Anaemia in Pregnancy, Medicine Today, 2014; 26(1):49-52. <https://doi.org/10.3329/medtoday.v26i1.21314>
12. Van den Broek, N. R., & Letsky, E. A. Etiology of anaemia in pregnancy in south Malawi. American Journal of Clinical Nutrition, 2000; 72(1), 247-254. <https://doi.org/10.1093/ajcn/72.1.247S>
13. Dutta, D.C., Text Book of Obstetrics, New central book agency (P) ltd, Calcutta, 2001; 277-323.
14. Gupta A, Kumar R, Salhotra VS, Mohan A, Rahi S, Guidelines for Control of Iron Deficiency Anaemia, Adolescent Division Ministry of Health and Family Welfare Government of India, Place: New Delhi, 2013; 15th January.
15. Achebe MM, Gafer-Gvili A, How I treat anaemia in pregnancy: iron, cobalamin, and folate. Blood, 2017; 129 (8):940-9. <https://doi.org/10.1182/blood-2016-08-672246>
16. WHO, Micronutrient deficiency: Battling iron deficiency anaemia: the challenge. Available from: <http://www.who.int/nut/ida.htm>, 2004; accessed on April 24, 2008.
17. Gogoi M, Prusty RK, Maternal Anaemia, Pregnancy Complications and Birth Outcome: Evidences from North-East India, Journal of North East India Studies. 2013; 3 (1):74-85.

18. Nair M, Choudhury MK, Choudhury SS, Kakoty SD, Sarma UC, Webster P, Knight M, On behalf of the IndOSS-Assam steering committee. Association between maternal anaemia and pregnancy outcomes: a cohort study in Assam, India. *BMJ Global Health*, 2016; 1:e000026. <https://doi.org/10.1136/bmjgh-2015-000026>
19. Moretti D, Goede JS, Zeder C, Jiskra M, Chatzinakou V, Tjalsma H, et al, Oral iron supplements increase hepcidin and decrease iron absorption from daily or twice-daily doses in iron-depleted young women. *Blood*, 2015; 126(17):1981-9. <https://doi.org/10.1182/blood-2015-05-642223>
20. Sandra E. Juula Richard J. Dermanb Michael Auerbach, Perinatal Iron Deficiency: Implications for Mothers and Infants, *Neonatology*, 2019; 115:269-274. <https://doi.org/10.1159/000495978>
21. Kabeeruddin. H (NA). *Moalijat sharah asbab*, Ijaz Publishing House, N. Delhi, Part I, 673-676.
22. Burton GN, Ingold KV, β -carotene, an unusual type of lipid antioxidant. *Science*, 1984; 24:569-76. <https://doi.org/10.1126/science.6710156>
23. Lubhaya, R.H (NA), Goswami Bayanul Advia, Goswami Kutub Khana Gali Qasim Jaan, Delhi, Vol. 1, P. 67, 290.
24. Parry J, Su L, Moore J, et al., J "Chemical compositions, antioxidant capacities, and antiproliferative activities of selected fruit seed flours". *J. Agric. Food Chem.* 2006; 54 (11):3773-8. <https://doi.org/10.1021/jf060325k>
25. Summanen, Jari Olavi: A Chemical and Ethnopharmacological Study on *Phyllanthus emblica* (Euphorbiaceae). Academic Dissertation. University of Helsinki Department of Pharmacy Division of Pharmacognosy 2, 1999;